

USA - Colorado Greenhouse Gas Emissions and Energy Management for Manufacturing Regulation

General Information

ETS Description

In October 2023, the Colorado Air Quality Control Commission (AQCC) adopted a regulation establishing an ETS covering large in-state manufacturers, beginning with the first compliance year in 2024. In December 2024, the AQCC adopted another regulation expanding the ETS's covered entities, beginning in the year 2028, to include oil and gas midstream operations. The GHG crediting and tracking system, referred to as "GHG CATS", came into force in November 2024 and continues to be enhanced. The regulations are designed to support the achievement of Colorado's statutory industrial and manufacturing sector-wide as well as its economy-wide GHG emission reduction goals. The regulations prioritize benefits to disproportionately impacted communities through reductions of locally harmful air pollutants.

The AQCC initially set reduction requirements for large manufacturing emitters through the "Greenhouse Gas and Energy Management for Manufacturing regulation" (GEMM 1) beginning in 2021, under the statutory direction of Colorado House Bill 19-1261. The GEMM 1 regulation applied to energy-intensive, trade-exposed (EITE or GEMM 1) manufacturing stationary sources that produced equal to or greater than 50,000 tCO₂e emissions annually. This threshold was lowered to 25,000 tCO₂e with the adoption of an amendment to the GEMM regulation (GEMM 2).

The AQCC expanded the GEMM 1 rule through the adoption of GEMM 2 in October 2023. The GEMM 2 regulation currently covers 18 manufacturing facilities (emitting equal to or greater than 25,000 tCO₂e) in addition to the four facilities that fall in the EITE (GEMM 1) categorization. While GEMM 2 institutes absolute emission reduction requirements, EITE (GEMM 1) sources adhere to intensity-based emissions limitations.

The AQCC further expanded the entities covered with the adoption of a rule in December 2024 covering GHG emissions from oil and gas midstream fuel combustion equipment, such as engines, turbines, and heaters. Equipment operators are subject to absolute emissions caps and may participate in the market beginning in 2028.

ETS Status

in force

Jurisdictions

Colorado

Year in Review

From February to June 2024, a technical working group collaborated to draft the GEMM GHG credit trading guidance. The draft focused on reconciling how credits from GEMM 1 facilities might interact with those from GEMM 2 facilities and exploring potential trading pathways between the two groups to ensure that trading EITE (GEMM 1) GHG credits (that are generated in relation to an intensity-based target) with GEMM 2 GHG credits (that are generated in relation to an absolute target) does not jeopardize progress toward Colorado's climate goals. Following a public comment period in July and August 2024, the division finalized and published the guidance in November 2024.

As a result of the GHG credit trading system being released in November 2024, EITE (GEMM 1) and GEMM 2 facilities are able to register in

the system. The trading elements of the system will be released by May 2025 when the first set of credits are issued. Following the issuance of the first set of credits, GEMM 1 and GEMM 2 facilities may trade GHG credits bilaterally or through bidding or offering their GHG credits in an annual auction, the first of which will begin in June 2025.

The AQCC adopted a rule in December 2024 covering GHG emissions from oil and gas midstream fuel combustion equipment, such as engines, turbines, and heaters. This will expand Colorado’s ETS to cover over 50% of the industrial and manufacturing sector’s emissions beginning in 2028.

Sectoral coverage

Industry

Emissions & Targets

Overall GHG Emissions excl. LULUCF (MtCO₂e)

135.6 MtCO₂e (2020)

GHG reduction targets

By 2025: 26% reduction below 2005 levels

By 2030: 50% reduction below 2005 levels

By 2035: 65% reduction below 2005 levels

By 2040: 75% reduction below 2005 levels

By 2045: 90% reduction below 2005 levels

By 2050: Net zero (Colorado Revised Statutes 25-7-102(2)(g)(I))

Size & Phases

GHGs covered

CO₂, CH₄, N₂O, SF₆, HFCs, PFCs, NF₃

Phases

GEMM 1:

PHASE 1: Five years (2025 to 2029)

PHASE 2: Five years (2030 to 2034)

PHASE 3: Five years (2035 to 2039)

PHASE 4: (2040 onwards)

GEMM 2:

PHASE 1: Three years (2024 to 2026)

PHASE 2: Three years (2027 to 2029)

PHASE 3: (2030 onwards)

MIDSTREAM:

Annual (2030 and thereafter)

Cap or total emissions limit

The total emissions limit under the Colorado GEMM regulation is the sum of the facility bottom-up annual emissions limits (EITE or GEMM 1) and facility emissions below 2030 reduction targets (GEMM 2) for all covered entities.

The total emissions limit under the Colorado midstream oil and gas regulation is 3,930,228 tCO₂e by 2030 and each year thereafter.

Sectors and thresholds

SECTORS: GEMM 1 and GEMM 2 regulations cover high-emitting stationary sources in the industrial and manufacturing sector.

GEMM 1 FACILITY INCLUSION THRESHOLDS: 25,000 tCO₂e and EITE source classification

GEMM 2 FACILITY INCLUSION THRESHOLDS: 25,000 tCO₂e

MIDSTREAM OPERATOR INCLUSION THRESHOLDS:

All midstream operators will be subject to emissions caps that take effect in 2030; operators with emissions greater than 25,000 tCO₂e in 2021 will be subject to scaled reduction requirements via their caps.

Point of regulation

Point source (industrial and manufacturing stationary sources)

Type of entities

Manufacturing stationary sources

Number of entities

GEMM 1: 4 facilities

GEMM 2: 18 facilities

Allowance Allocation & Revenue

Allowance allocation

GEMM 1 facilities are allocated GHG reduction credits annually, free of charge, based on how much less the facility's annual direct GHG emissions, in tCO₂e, are compared with its emissions limitation in the relevant year.

GEMM 2 facilities are allocated GHG reduction credits annually, free of charge, based on how much lower the facility's annual direct GHG emissions are compared with its 2030 GHG emissions requirement.

From 2028, midstream operators will be allocated GHG reduction credits annually, free of charge, based on how much lower the operator's annual direct GHG emissions from midstream fuel combustion equipment are compared with its 2030 GHG emissions cap.

Starting in May 2025, GEMM 1 and GEMM 2 facilities will be allocated credits by the first Tuesday of May each year. Starting in May 2028, midstream operators will be allocated credits by the first Tuesday of May each year.

From the outset of the trading system, GEMM 2 facilities may generate credits through onsite carbon capture and storage projects, subject to an approved protocol. From 2031, GEMM 2 facilities will also be able to generate GHG reduction credits through offsite direct air carbon capture projects, subject to an approved protocol. Facilities that generate GHG reduction credits may use the credits toward future compliance obligations or trade the credits to other GEMM facilities.

Use of Revenues

The Colorado ETS will not collect revenues or handle the exchange of funds from buyer to seller. The auction will facilitate the trade, but the financial transaction will be done directly between the facilities.

If the AQCC adopts the proposed state-managed fund in 2025, GHG Reduction Fund revenues should be used to finance decarbonization projects at other industrial sites located within disproportionately impacted communities, prioritizing projects in or near disproportionately impacted communities.

Flexibility & Linking

Offset credits

The use of offsets is not allowed as a compliance option.

Banking and borrowing

EITE (GEMM 1) and GEMM 2 facilities can bank GHG credits for up to three years from the date generated.

Borrowing is not allowed.

Links with other Systems

The Colorado industrial and manufacturing GHG credit trading system is not linked with any other system.

Compliance

Compliance mechanism

Each covered facility/operator must surrender one credit per tCO₂e that exceeds its annual emissions limit or compliance obligation in the relevant compliance period.

Under the GEMM 2 rule, an EITE (GEMM 1) facility's annual emissions limit for a compliance year is calculated by using its previous year's production totals and emissions intensity requirement and applying a 5% mass-based emissions reduction. The annual emissions limit varies each year depending on the production level of the facility. The facility's emissions intensity requirement is reflective of best available control technology and industry standards and is updated every five years.

A GEMM 2 facility's GHG emissions requirement is based on its historical mass-based emissions reductions between 2015 and its baseline year (either 2021 or 2022, whichever has the higher emissions) and the facility's share of emission contributions to the GEMM 2 group's cumulative baseline. These two factors were used to determine the interim (2024 to 2029) and 2030 emissions requirements such that the 18 facilities collectively achieve a 20% mass-based reduction in emissions by 2030 relative to the group's aggregate emissions in 2015.

Beginning in 2030, before they may access the trading system, GEMM 2 facilities must implement their portfolio of onsite, technically feasible emissions reduction measures as well as undertake additional GHG and harmful air pollutant reductions if the facility is located near a disproportionately impacted community. The Colorado Department of Public Health and Environment's Air Pollution Control Division (APCD) reviews and approves the GHG reduction plans.

Under the regulation adopted in December 2024, midstream operators' GHG emission caps starting in 2030 are based on recent actual emissions, avoided emissions from recent voluntary electrification projects, and a sliding scale that places relatively more reduction burdens on larger companies. Smaller companies (those emitting less than 25,000 tCO₂e in 2021) are assigned an emission cap that does not require reductions *per se* but instead requires them to maintain applicable GHG emissions at the levels of a recent representative year.

Compliance Period

GEMM 1: One year

GEMM 2: Two three-year compliance periods (2024 to 2026 and 2027 to 2029) with one-year compliance periods from 2030 and beyond

Monitoring, Reporting, Verification (MRV)

GEMM 1:

REPORTING: Beginning in 2026, EITE (GEMM 1) facilities must submit a report by May each year including data regarding the previous year's total emissions, total units of production, and emissions rate per product.

VERIFICATION: EITE (GEMM 1) facilities must have a third-party conduct energy and GHG emission control audits every five years to establish and determine whether GHG best available emissions control technology (BAECT) and energy best management practices (BMP) are being employed. The audit reports require both GHG BAECT and energy BMP analyses that identify and rank all technically feasible control technologies and strategies and energy efficiency measures.

GEMM 2:

REPORTING: Beginning in 2025, GEMM 2 facilities must submit a report by the end of March each year, including data regarding the previous year's total direct emissions. GEMM 2 facilities must also submit GHG reduction plans that identify what technically feasible

portfolio of onsite measures at or below the 2030 social cost of GHGs they plan to use to meet their emission reduction requirements. Compliance reports as well as GHG reduction plan progress and compliance reports must be submitted by the end of September for each compliance period (2024 to 2026 to be submitted in 2027, 2027 to 2029 to be submitted in 2030, and annually from 2030 onward).

VERIFICATION: GHG reduction plans must undergo a technical and regulatory review by an independent third party.

FRAMEWORK: The GHG emissions reporting rules for both GEMM 1 and GEMM 2 facilities are outlined in Colorado’s “Greenhouse Gas Reporting and Emission Reduction Requirements Emissions” regulation.

MIDSTREAM:

REPORTING: Beginning in 2028, midstream operators seeking to generate credits must submit a report by the end of March, including data regarding the previous year’s total direct emissions, in order to be eligible to generate credits for the previous year. Midstream operators will be allowed to submit such a report by the end of June each year but will not be eligible for credits for emission reductions from the previous year. Additionally, all midstream operators will be required to submit an annual report by the end of June each year that describes their emissions and plans for reductions to achieve compliance.

FRAMEWORK: The rules for reporting GHG emissions for midstream oil and gas operators are outlined in Colorado’s “Control of Emissions from Oil and Gas Emissions Operations” Regulation No. 7 (5 CCR 1001-9), effective February 2025.

Penalties and enforcement

GEMM 1: In the event of noncompliance, EITE (GEMM 1) facilities will need to surrender three GHG credits for every tCO₂e emitted in excess of the facility’s annual emissions limit and may be subject to a civil penalty or other enforcement action.

GEMM 2: In the event of noncompliance, a GEMM 2 facility’s GHG emissions reduction requirement for the relevant compliance period will be adjusted downwards by at least two times the amount that the facility exceeded its emissions reduction requirement. The resulting increased compliance obligation must be achieved within three years of the period of non-compliance. GEMM 2 facilities not in compliance for a particular year must submit a mitigation plan by the end of the following calendar year. Civil penalties and other enforcement actions may also be assessed.

MIDSTREAM: In the event of noncompliance, the Division will pursue appropriate enforcement measures through the existing oil and gas compliance and enforcement program.

Market Regulation

Market Design

MARKET PARTICIPATION: Covered entities

MARKET TYPES:

Primary: Beginning in May 2025, GEMM 1 and GEMM 2 facilities receive credits corresponding to the extent to which their emissions are below their 2030 emissions reduction obligations on the first Tuesday of May each year. Beginning in 2028, midstream operators will receive credits corresponding to the extent to which their emissions are below their 2030 emissions reduction obligations.

Auction: An annual auction is held in June each year starting in 2025. Bidders may not also be offerors for the same vintage year of credits and vice versa. APCD will administer the auction but will not handle the money for any transactions.

Secondary: Participants may bilaterally contract between themselves through the GHG credit trading system that was established in November 2024. APCD will help facilitate direct transfers of GHG credits between covered entities but will not handle the money for any transactions.

Retirement: All participants may retire credits and count these towards their own compliance within the three-year banking period.

Other Information

Institutions involved

Colorado Air Quality Control Commission: Responsible for holding hearings and adopting regulations on air quality matters consistent with statutory direction.

Colorado Department of Public Health and Environment Air Pollution Control Division: Responsible for developing, administering, and enforcing the adopted AQCC regulations based on a mandate from the Colorado legislature.

Regulatory Framework

[Greenhouse Gas Emissions and Energy Management for Manufacturing Phase 1 and Phase 2 Regulation \(AQCC Regulation No. 27\)](#)

[Control of Emissions from Oil and Gas Emissions Operations \(AQCC Regulation No. 7\)](#)

[Climate Action Plan to Reduce Pollution \(House Bill 19-1261\)](#)

[Greenhouse Gas Emission Reduction Measures \(Senate Bill 23-016\)](#)

[Environmental Justice Act \(House Bill 21-1266\)](#)

[Collect Long-Term Climate Change Data \(Senate Bill 19-096\)](#)

Evaluation / ETS review

The AQCC has directed the Division to evaluate the trading program and to identify any modifications that may be necessary. If any such modifications are identified by the Division, the AQCC requests that the Division bring a petition to request a rulemaking hearing to the AQCC by September 2025. In addition, the AQCC has directed the Division to report on the following before the end of December 2025:

- the status of the trading program;
- and the co-pollutant reductions associated with the credits generated for the trades.

Disclaimer

Copyright © 2022 by International Carbon Action Partnership (ICAP). All rights reserved. The content provided by the ICAP ETS map is protected by copyright. You are authorized to view, download, print and distribute the copyrighted content from this website subject to the following condition: Any reproduction, in full or in part, must credit the International Carbon Action Partnership (ICAP) must include a copyright notice. If you have any questions please contact [infoicapcarbonaction \[dot\] com](mailto:infoicapcarbonaction@icapcarbonaction.com) ([info\[at\]icapcarbonaction\[dot\]com](mailto:info@icapcarbonaction.com)).

In line with ICAP's mandate, the ICAP ETS map exclusively covers cap-and-trade systems for greenhouse gas emissions. Information displayed on the map is regularly updated by ICAP Secretariat staff based on official and public information as far as possible and subject to annual peer review by government representatives from the covered systems. Although the information contained in the map is assembled with utmost care, ICAP cannot be held liable for the timeliness, correctness and completeness of the information provided. Please refer to the imprint on the website of the International Carbon Action Partnership regarding links to external websites, liability and privacy policy.